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Title: Nucleus - Prototyping a secure internal collaboration space for LANL research

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Knudson, Frances Lynn

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Nucleus

Prototyping a secure internal collaboration space
for LANL research

Martin Klein
Frances Knudson
Herbert Van de Sompel

Acknowledgments: Brian Cain, Jason Keith, Lyudmila Balakireva

Results from Data Management Surveys, Working Groups

- Need for infrastructure to support **internal** and **external** research collaboration
 - Providing data storage and data sharing
 - Integration with frequently utilized research tools/flows
 - Support documentation and preservation
 - Compliant with LANL policies re data management, review and release, security

Others Have Invested in Data Management Infrastructure

Institution	Staffing
Lawrence Livermore National Laboratory	1 PT
National Renewable Energy Laboratory	3 FTE + 1 PT
Oak Ridge National Laboratory	3 FTE
Purdue University	5 FTE + 2-3 students
University of New Mexico	2 FTE + 3 students

Taking Action at LANL

- Reality: LANL policies prevent the use of off-the-shelf, cloud-based “open science” platforms that many other research institutions use.
- Ergo:
 - Investigate the feasibility of a local solution
 - Goal: address **internal** data management & collaboration
- **Nucleus Project**
 - Pilot effort by the Research Library
 - Since January 2017; 1 FTE hired; 4 PT contributors
 - Based on a local install of the Open Science Framework software

Open Science Framework



Open Science Framework

- Open Source Software
- Default use is in the cloud-based portal osf.io that supports multi-organizational open science and collaborative scholarship
- Provides glue for many aspects of the research workflow
- Offers integrations with many existing productivity tools
- Developed and maintained by the Center for Open Science at the University of Virginia

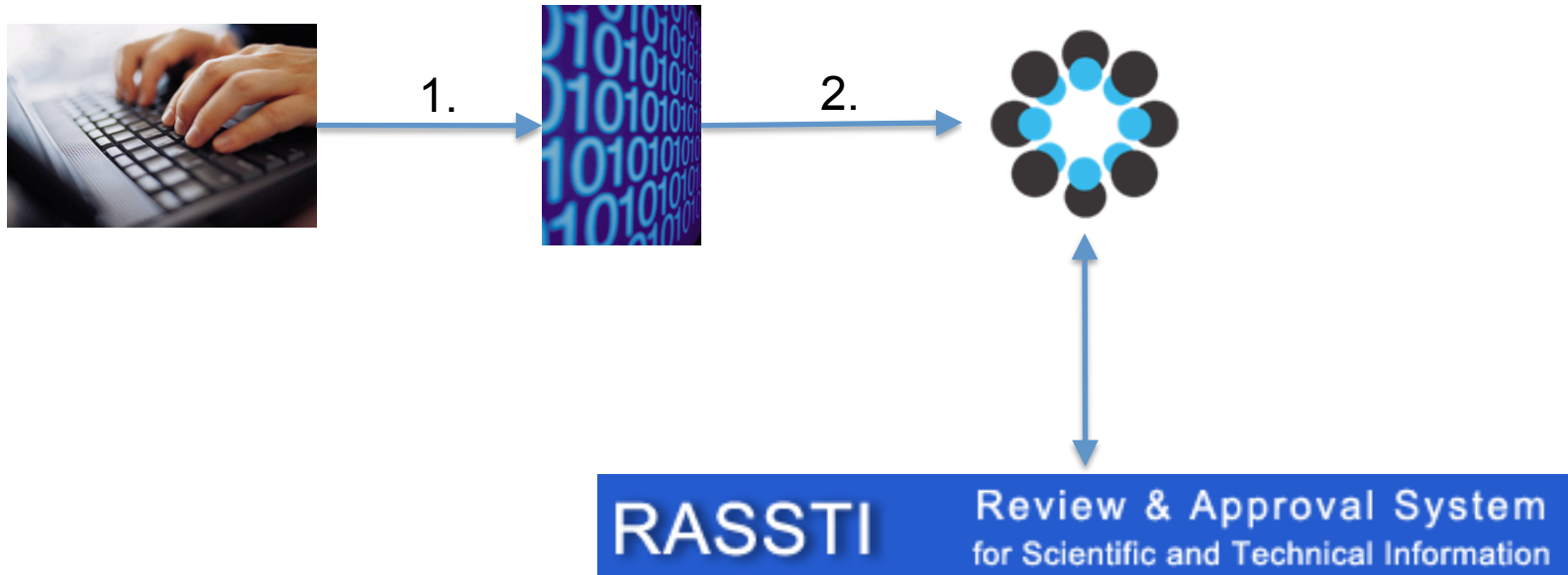
Core Anticipated Benefits for Researchers

- Optimize a researcher's use of time by:
 - Making it easier to accomplish collaborative goals
 - Reducing number of steps to achieve goals
 - Reducing potential for errors when accomplishing goals
 - Improving project management, communication
- By deploying a platform that:
 - Streamlines workflows
 - Provides glue between systems/tools
 - Provides an overview of assets involved in research collaboration

Submit Dataset to RASSTI - Before



Submit Dataset to RASSTI - After

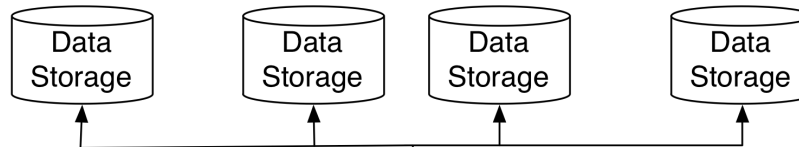


Nucleus: Open Science Framework at LANL

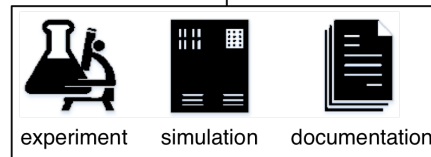
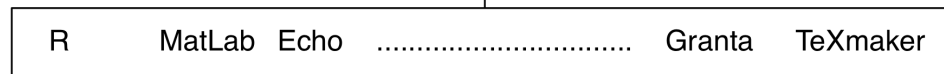
OUTSIDE
LANL

firewall

STORAGE

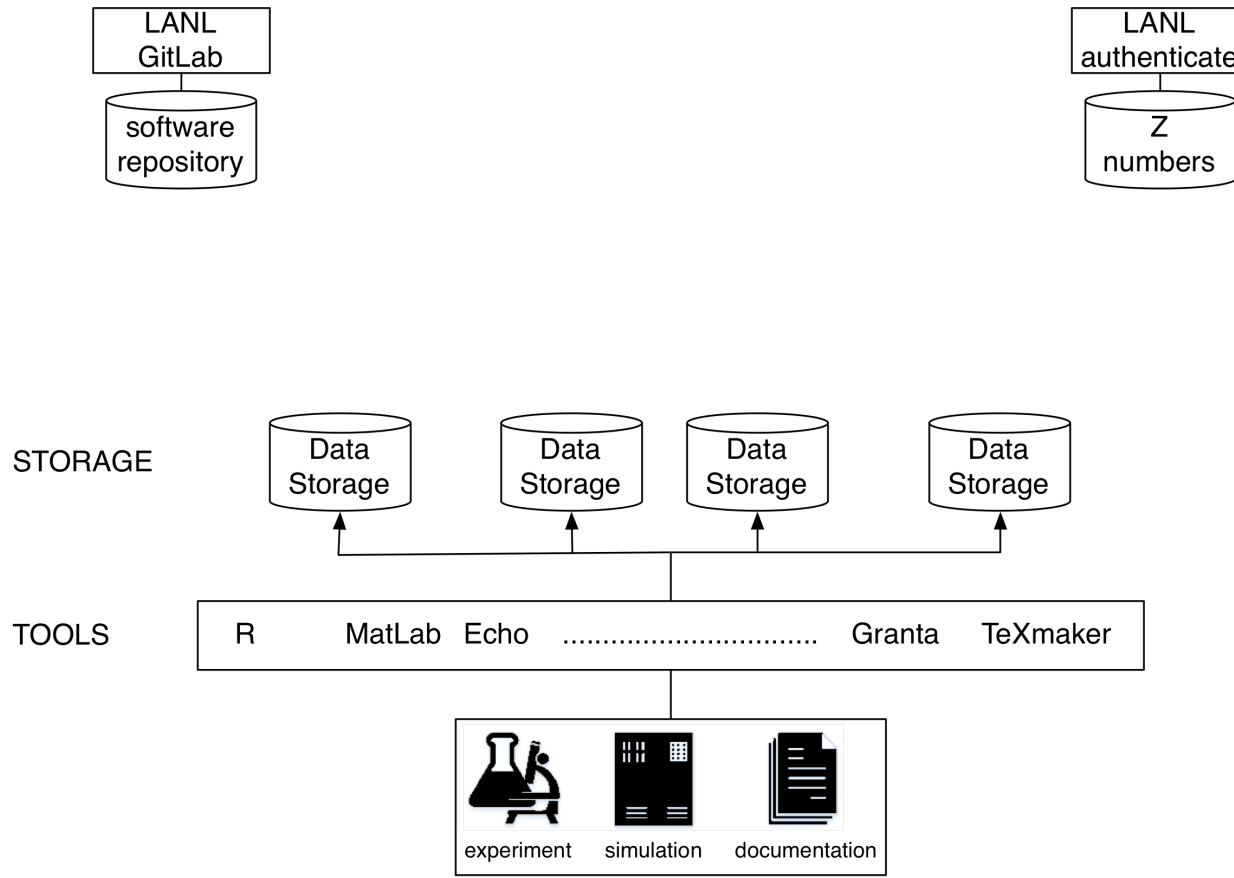


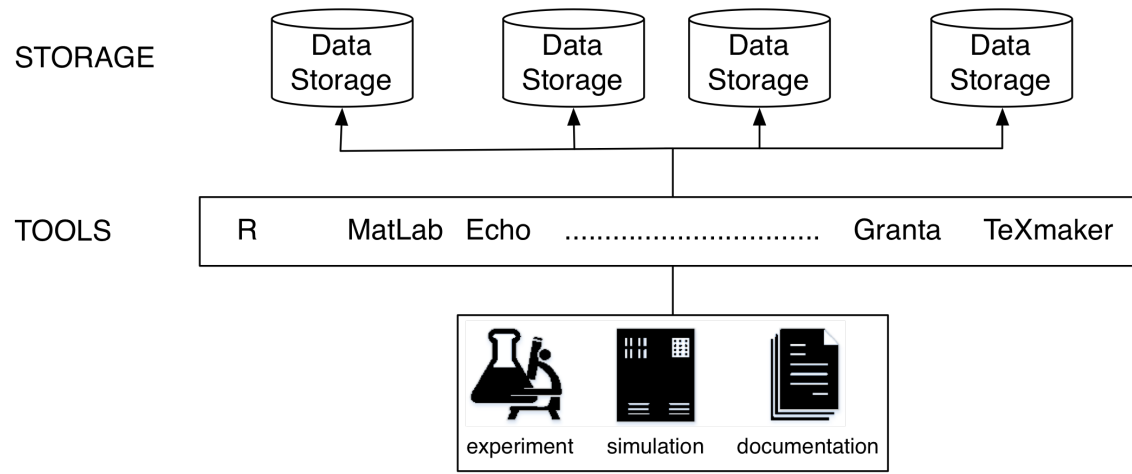
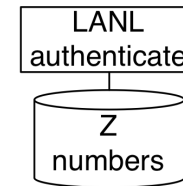
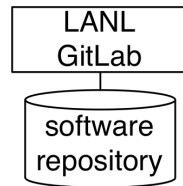
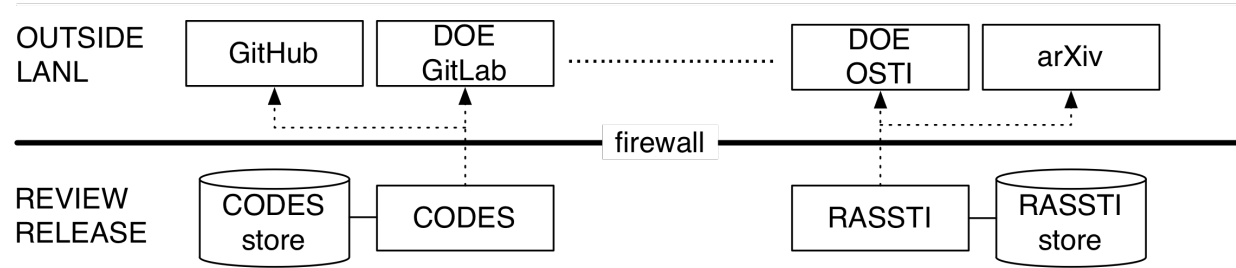
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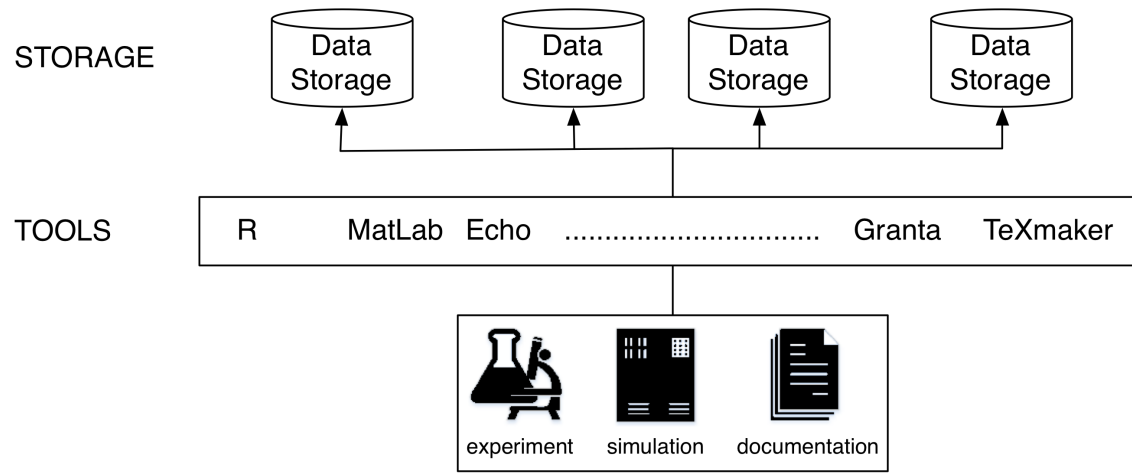
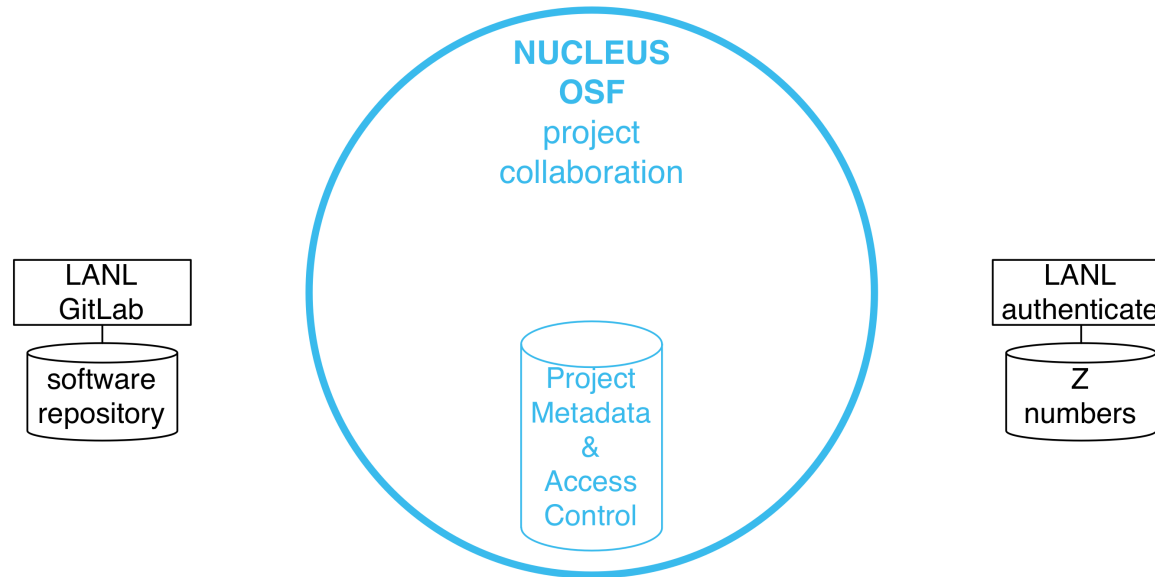
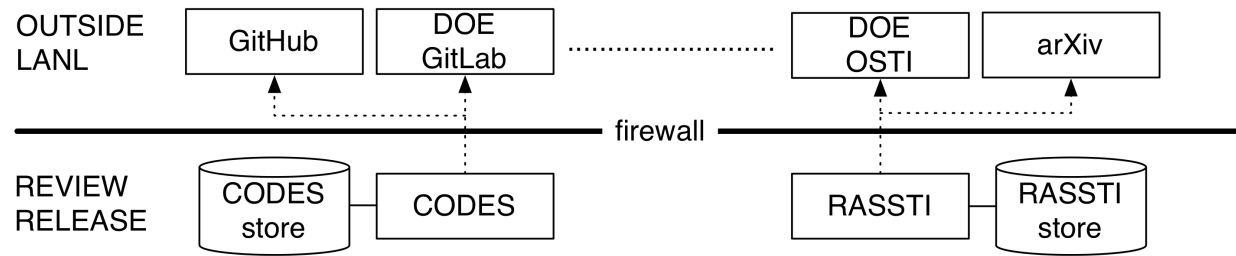


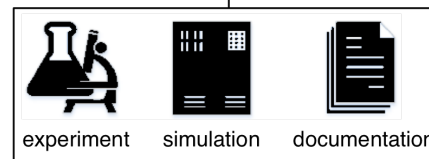
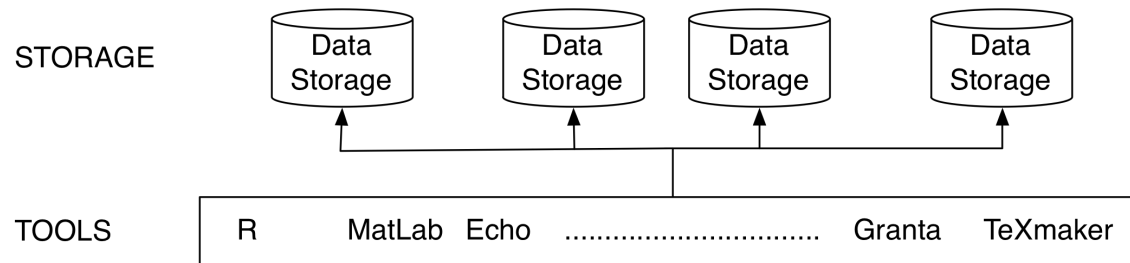
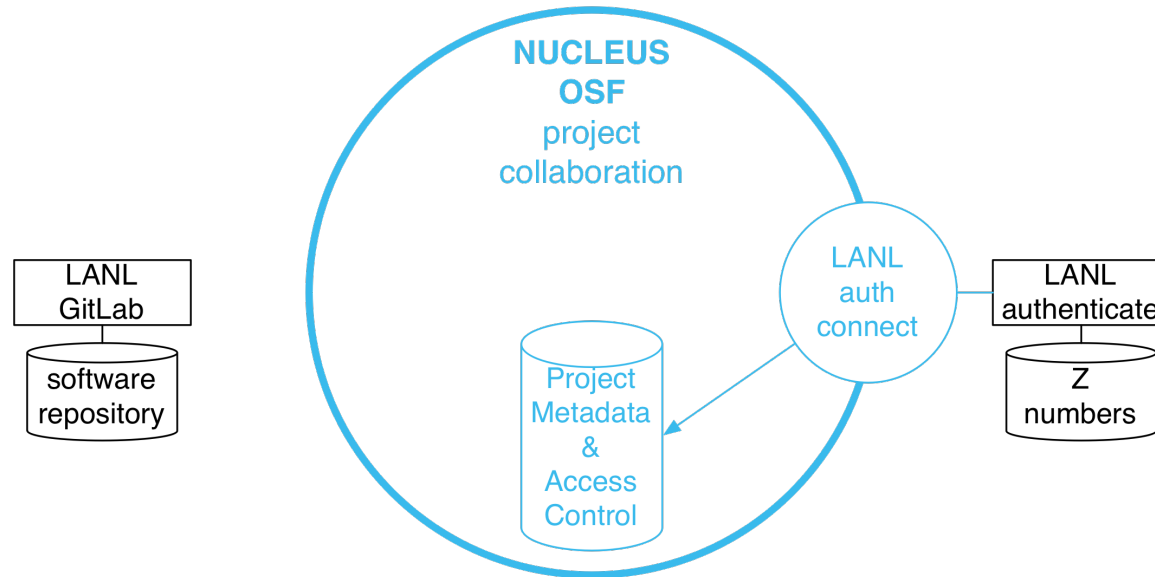
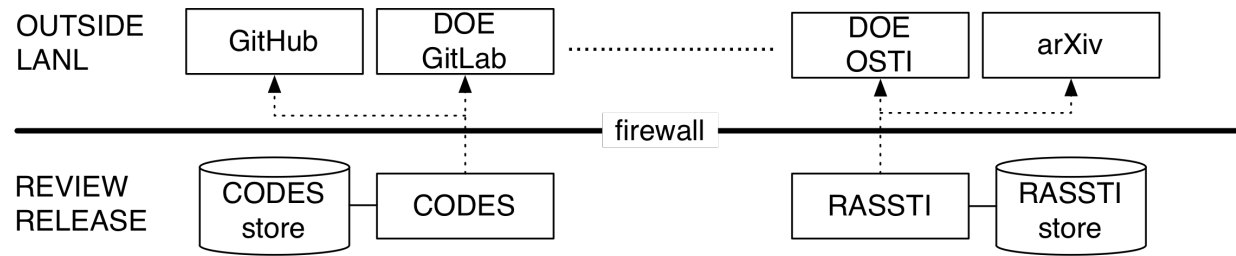
OUTSIDE
LANL

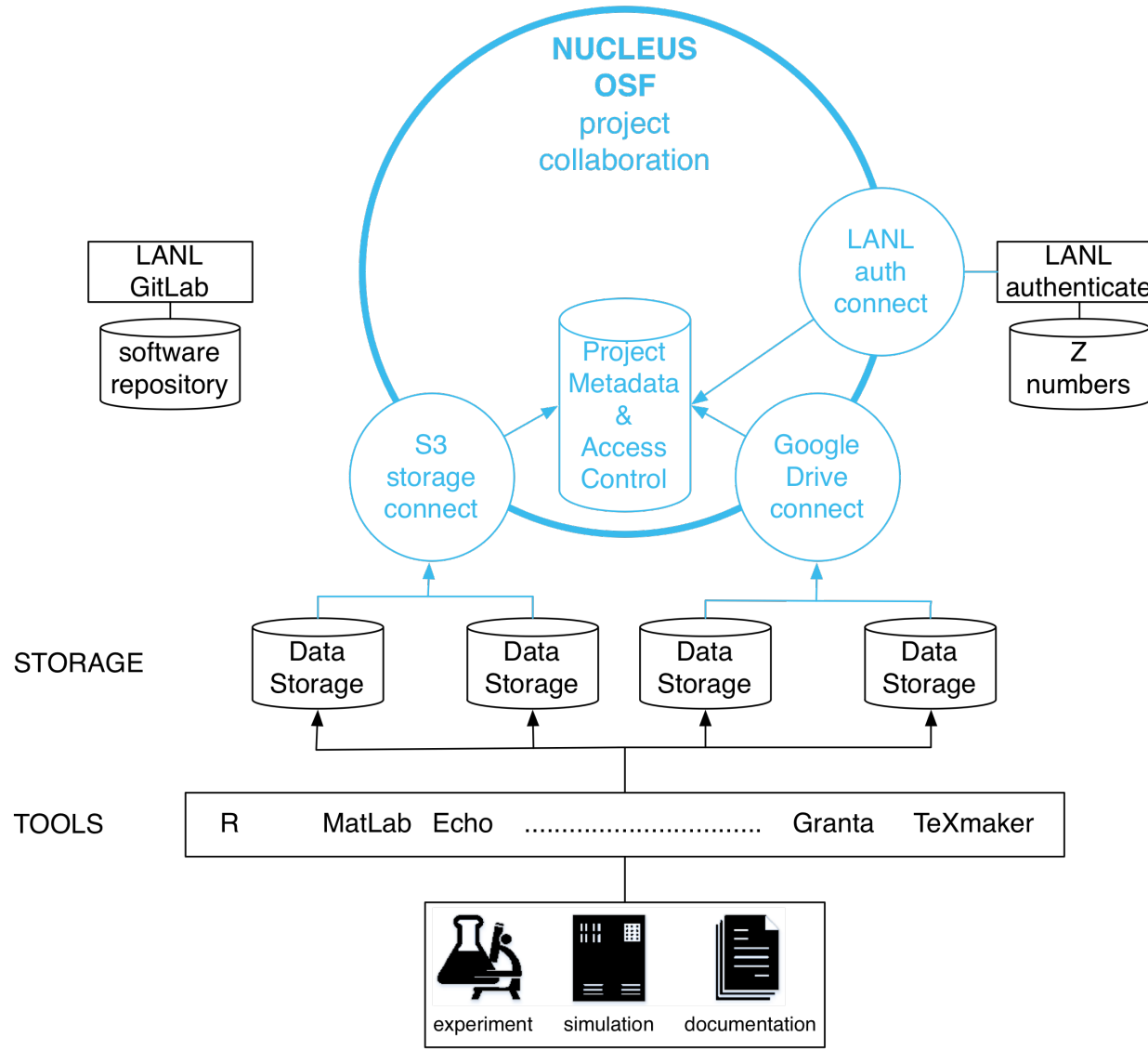
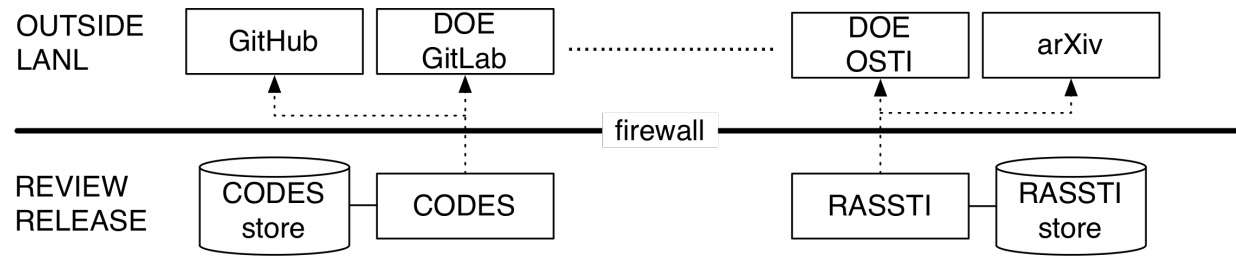
firewall

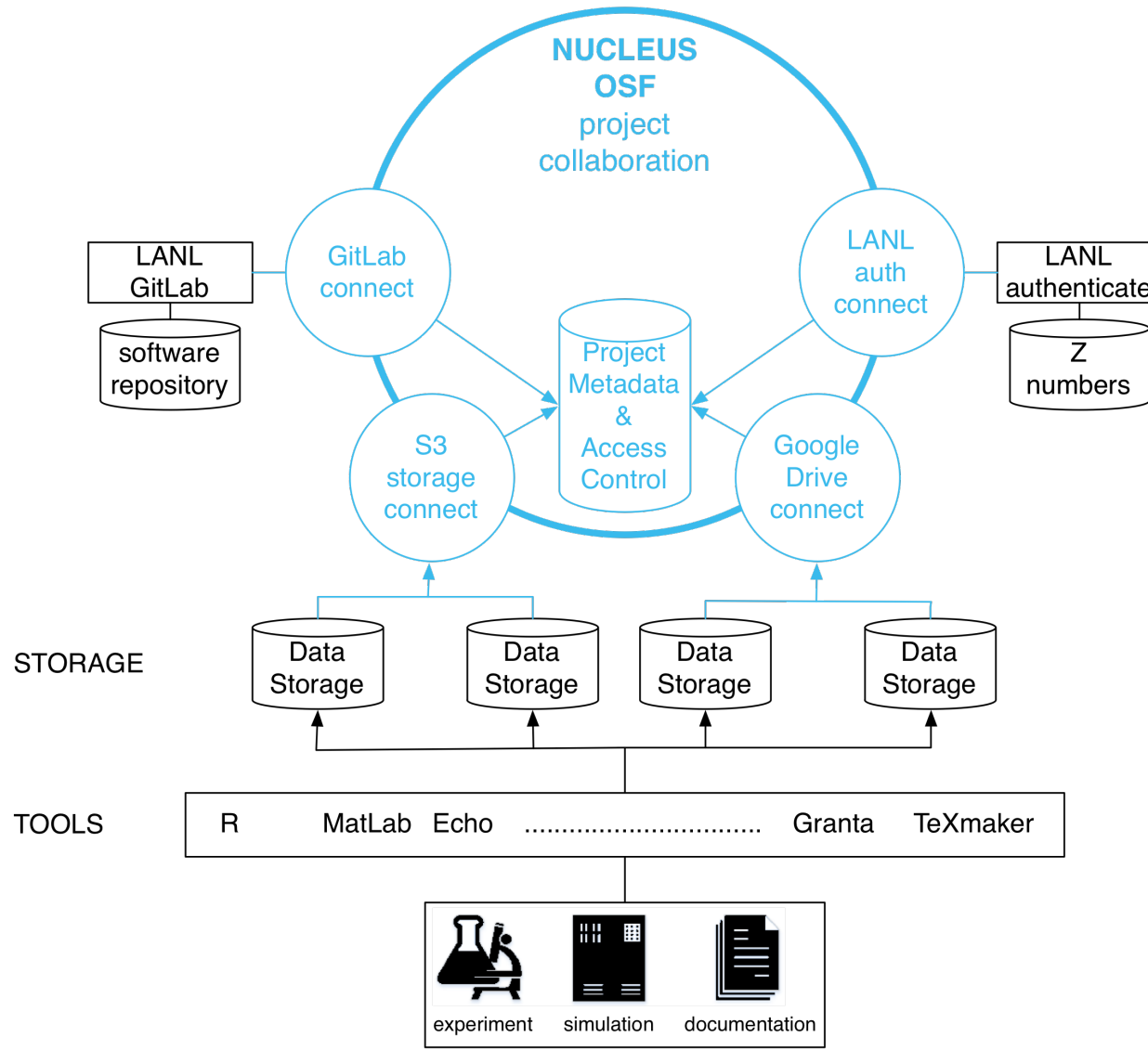
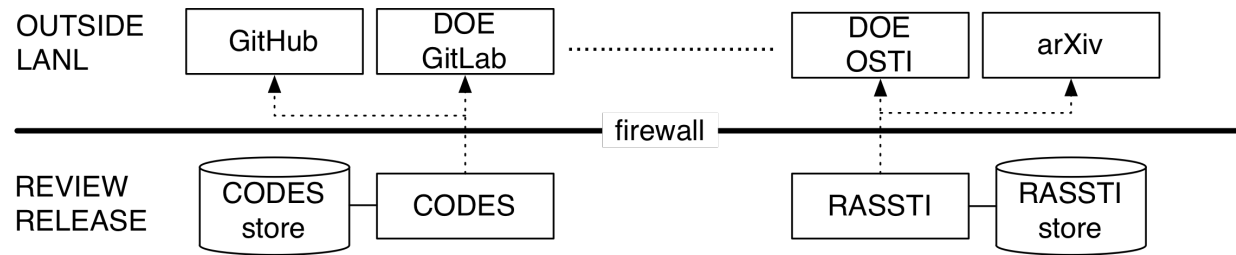


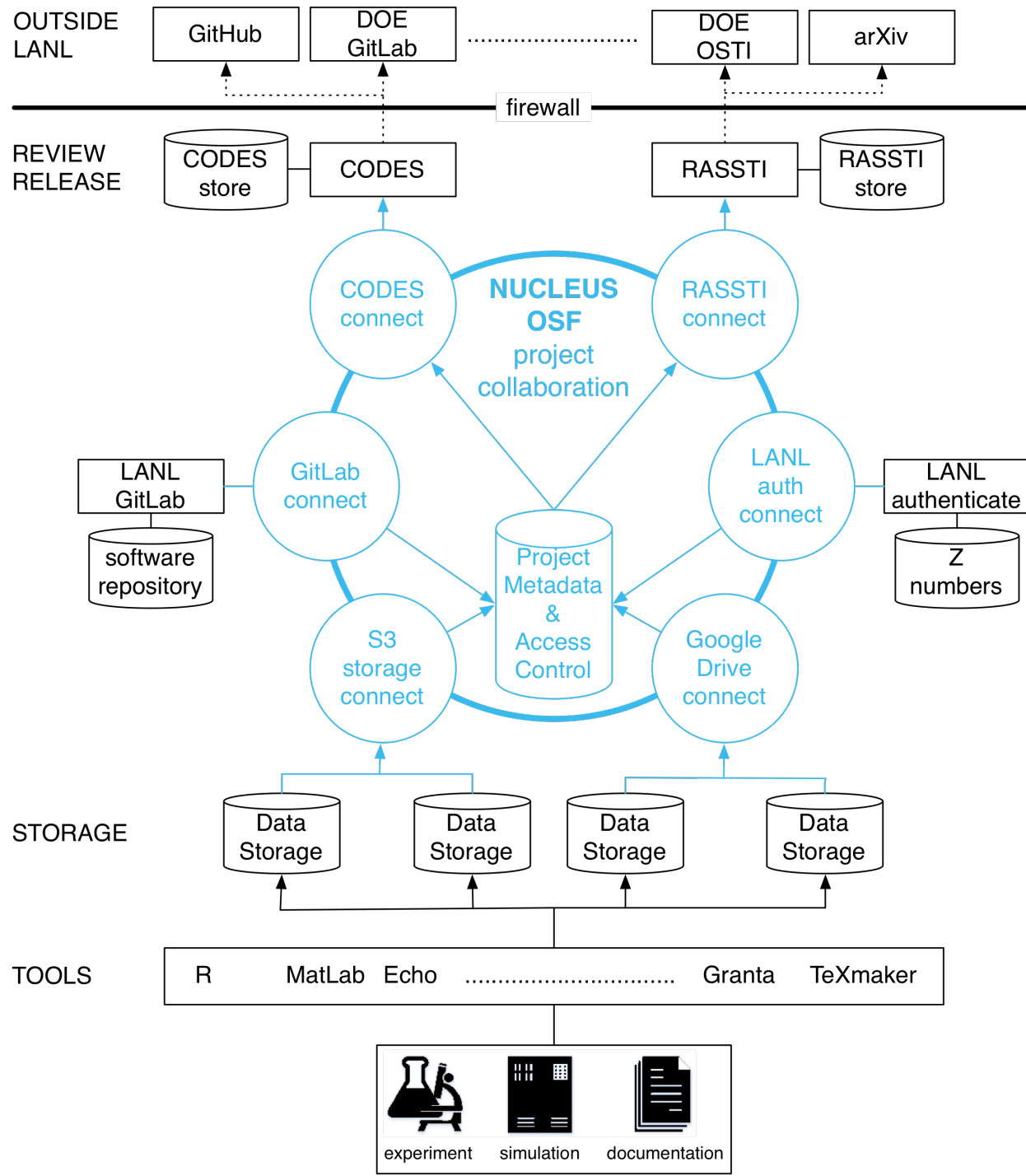


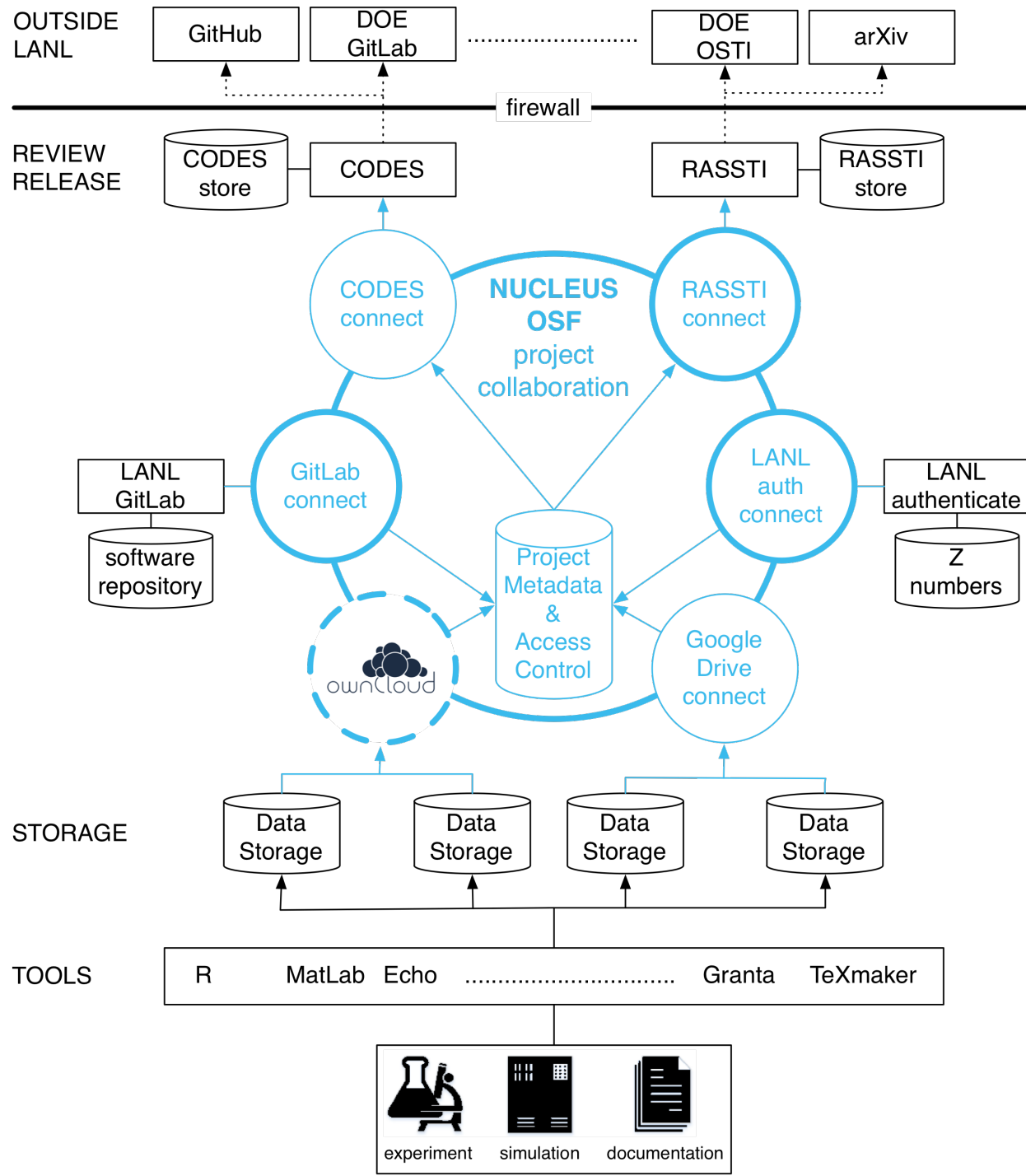












OSF | Demo Project

Secure | https://nucleus.lanl.gov/6w2gx/

OSFHOME

My ProjectsSearchSupportMartin Klein

Demo ProjectFilesWikiForksContributorsSettings

Demo Project

PrivateMake Public0

Contributors: Martin Klein, Brian J. Cain

Date created: 2018-01-24 09:16 AM | Last Updated: 2018-02-15 01:37 PM

Category: Project

Description: Add a brief description to your project

License: Add a license

Wiki

Demo Project Wiki home page

Project documentation goes here

Files

Click on a storage provider or drag and drop to upload

DownloadSubmit to RASSTIViewDelete

RenameFilter

Name	Modified
Demo Project	
GitLab: mklein/Nucleus_Demo_repo (mast...	
gitlab_test.txt	
README.md	
OSF Storage	
ownCloud: demo_project	
421-1922-1-PB.pdf	2018-02-01 12:42 PM
iPRES_2016_paper_43.pdf	2016-09-15 08:13 AM

Citation

nucleus.lanl.gov/6w2gx

Components

Add ComponentLink Projects

Demo Component

Klein & Cain

7 contributions

Tags

HPC x add a tag

Recent Activity

Martin Klein updated wiki page Home to version 3 of Demo Project

Brian J. Cain updated wiki page Home to version 2 of Demo Project

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NameModified

Demo Project

GitLab: mklein/Nucleus_Demo_repo (mast...

gitlab_test.txt

README.md

OSF Storage

ownCloud: demo_project

421-1922-1-PB.pdf2018-02-01 12:42 PM

iPRES_2016_paper_43.pdf2016-09-15 08:13 AM

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HPC

add a tag

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2018-02-15 01:37 PM

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Current Nucleus Status

- OSF software installed at LANL (currently on IoD)
- OCE accessible
- Authentication based on Z number and cryptocard
- Account management based on Z number
- Connectors:
 - ownCloud storage, for demonstration purposes
 - LANL GitLab
 - RASSTI, initial integration
- Presented to RL Advisory Board and Executive Data Committee
- User testing is ongoing

Questions with Regard to Possible Deployment of Nucleus

- Who should take ownership?
 - ADBI is largely focused on administrative IT
 - No academic IT department
 - Is this a Research Library task?
 - Is there interest in such a service in the classified realm?
- Resources beyond the pilot?
 - Estimated initial need for 2 FTE
- Technical challenges
 - Storage connectors supported by OSF are not supported at LANL
 - Storage at institution, division, group level?
 - Cybersecurity review